

Response Under 37 CFR 1.116

Expedited Procedure

Examining Group 1700

Application No.: 10/624,921

Paper Dated: January 10, 2007

In Reply to USPTO Correspondence of July 10, 2006

Attorney Docket No. 2398-031312

AMENDMENTS TO THE SPECIFICATION

Please replace paragraph [0029] on pages 6 and 7, with the following rewritten paragraph:

--In the case of an angled top portion 42, as shown in FIGS. 1 and 6, the top portions 42 of the respective pairs of magnet segments 36a, 36b are angled toward each other. If the contoured top portion 42 is angled, it is preferable for an apex of the contoured top portion 42 to be flat, desirably between 0.01 inch to 0.060 inch or up to half the thickness of the magnet segment 36a, 36b. Having a flat apex 44 minimizes the possibility of chipping the magnet segments 36a, 36b during routine use of the completed assembly. Alternatively, the apex may come to a point. In the ordinary operation of the sputtering system 10, the closed loop magnet arrangement 14 is situated beneath the target 12 and within the magnet receiving chamber 21, wherein the apex 44 of at least one of the profiled magnets 16 is positioned adjacent to an outer edge of the target 12. Further, a portion of the contoured top portion 42 of at least one of the profiled magnets 16 may be positioned at or extend beyond the outer edge of the target 12. The target 12 can be any material which is to be sputtered onto a substrate. The closed loop magnet arrangement 14 can be rotated relative to the target 12 via the motor 22 and the drive shaft 20. In the preferred embodiment, when a circular target is utilized, rotation is concentric in relation to the center of the support plate 18. Alternatively, rotation may occur about an eccentric portion of the support plate 18 if the area of attachment of the drive shaft 20 to the support plate 18 were to be relocated. This type of rotation is also encompassed by the view depicted in FIG. 1. Preferably, the contoured top portion 42 of the magnet segments 36b of the outer assembly 32 moves in such a manner that at least some point of its movement is positioned adjacent to or near the edge of the target 12. In this arrangement, maximum target utilization can occur. In an alternative embodiment of the present invention, the closed loop magnet arrangement may move in a linear fashion relative to the target 12. In yet another alternative embodiment of the present invention, the movement of the closed loop magnet arrangement 14 is not limited to one axis of rotation. Specifically, the sputtering system 10 may employ two or more degrees of freedom in the movement of the closed loop magnet arrangement 14. For example, the sputtering system 10 may provide a dual axis rotation to the closed loop magnet arrangement 14 by utilizing a circular-movement inducing motor in conjunction with a linear-movement inducing motor.

Response Under 37 CFR 1.116

Expedited Procedure

Examining Group 1700

Application No.: 10/624,921

Paper Dated: January 10, 2007

In Reply to USPTO Correspondence of July 10, 2006

Attorney Docket No. 2398-031312

Thus, it is possible to generate various combinations of movements of the closed loop magnet arrangement 14, and hence, more efficient target utilization.--